

REMARKS

The Office Action dated July 25, 2008, has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-17 are presently pending in the current application and are respectfully submitted for reconsideration.

The Office Action indicated that claims 1-4 and 13-15 have been allowed and claims 9-11 were objected to for containing allowable subject matter but depending on a rejected base claim. Applicants wish to thank the Examiner for the allowance of these claims. However, claims 5-8, 12, 17 and 17 are respectfully submitted for reconsideration.

Claims 5-8, 12, 16, and 17 were rejected under 35 U.S.C. §103(a) as being unpatentable over RFC 2992, "Analysis of an Equal-Cost Multi-path Algorithm, November 2000, to Hopps (hereinafter Hopps) in view of U.S. Publication No. 2004/0064583 to Dani et al. (hereinafter Dani). The Office Action took the position that Hopps discloses all of the subject matter of the claims except for a packet weight which corresponds to a number of entries in a memory. The Office Action then relied on Dani to cure those admitted deficiencies of Hopps. This rejection is respectfully traversed.

Claim 5, from which claims 6-12 depend, is directed to a method of distributing data across a network. A distribution device configured to distribute a set of packets of data across a set of equal-cost paths in the network is provided. Each packet in the set of

packets are distributed across the set of equal-cost paths according to a weighted distribution so that at least one of said packets is given greater weight to be distributed across at least one of said equal-cost paths than at least one other of said equal-cost paths, said packet weight corresponding to a number of entries stored in a memory.

Claim 16 recites a device for distributing Internet protocol packets across a network. The device includes a set of interface means for interfacing the device with the network, and distribution means for distributing a set of packets entering the device through a first interface means in the set of interface means such that packets in the set of packets are distributed across all interface means in the set of interface means operably connected to equal-cost paths according to a weighted distribution so that at least one of said packets is given greater weight to be distributed across at least one of said equal-cost paths than at least one other of said equal-cost paths, said packet weight corresponding to a number of entries stored in a memory.

Initially, Applicants note that claims 1, 5, 13 and 16 are independent claims, and that claims 1, and 13 have been allowed. Applicants further note that claims 5 and 16 recite features which are not disclosed in Hobbs or Dani for at least the following reasons.

Regarding claim 5, Applicants respectfully submit that Hobbs fails to disclose or suggest “distributing each packet in the set of packets across the set of equal-cost paths according to a weighted distribution so that at least one of said packets is given greater weight to be distributed across at least one of said equal-cost paths than at least one other

of said equal-cost paths, said packet weight corresponding to a number of entries stored in a memory”, as recited in independent claim 5 and similarly in independent claim 16 (emphasis added).

Hobbs discloses a equal cost multi-path (ECMP) algorithm that is described with reference to a modulo-N algorithm and a highest random weight (HRW) algorithm. The Office Action alleged that the HRW algorithm teaches the subject matter recited in claims 5 and 16. Applicants disagree and submit that the HRW algorithm is based on determining a weight of a next-hop and not a “packet weight”, as recited in the claims (see lines 4 and 5 of paragraph 3 on page 6 of Hopps).

In particular, Hopps discloses that for each next-hop, the router seeds a pseudo-random number generator with the packet header fields which describe the flow and the next-hop to obtain a weight. “The next-hop which receives the highest weight is selected.” The algorithm is further noted as having a minimal disruption with the adding or subtracting of a next-hop to the network routing multi-path list of possible next-hops. As can be clearly observed from the HRW algorithm of Hobbs, the next-hop router is the only factor in determining where the packets will be transmitted next. In other words, the packet weight is not a factor in the algorithm used by Hobbs. Claim 5 and 16 both recite that at least one packet is given a “greater weight” to be distributed across at least one equal-cost paths. In addition, those claims also recite that “said packet weight” corresponds to a number of entries stored in a memory. Hopps does not teach or suggest “distributing each packet in the set of packets across the set of equal-cost paths according

to a weighted distribution so that at least one of said packets is given greater weight to be distributed across at least one of said equal-cost paths than at least one other of said equal-cost paths, said packet weight corresponding to a number of entries stored in a memory”, as recited, in part, in claims 5 and similarly in claim 16. In addition, Dani fails to cure the deficiencies of Hobbs with respect to the claims.

Dani discloses a load balancing algorithm that balances network traffic from a plurality of end node devices based on the traffic volume of the peripheral links. Similar to the disclosure of Hopps, the weight determination algorithm of Dani relies entirely on the link path and does not use packet weight information to determine an equal cost path to transmit a particular packet. The link costs disclosed in Dani are comparable to the next-hop weighted distribution of Hopps because both the link and the next hop router refer to the remote extremities of the path as opposed to the individual packets.

The Office Action relied on the teachings of paragraph [0014] of Dani to cure the deficiencies of Hobbs. Applicants disagree that paragraph [0014] or any other portion of Dani cures the deficiencies of Hobbs with respect to claims 5 and 16. Dani discloses that a memory is coupled to a CPU to provide storage for a weight buffer. Each end node port on the switch has an associated default cost that relates to the rated bandwidth of a peripheral link (see paragraph [0014] of Dani). Specifically, Dani discloses that the “weight buffer contains weight values associated with the end node ports.” Dani also discloses that a “peripheral link with a high volume of traffic may be assigned a higher weight than a peripheral link having a lower volume of traffic.” Clearly, the weight

buffer stores only information related to the weights of links and does not provide any packet related weight information. Dani, like Hobbs, also fails to teach or suggest “distributing each packet in the set of packets across the set of equal-cost paths according to a weighted distribution so that at least one of said packets is given greater weight to be distributed across at least one of said equal-cost paths than at least one other of said equal-cost paths, said packet weight corresponding to a number of entries stored in a memory”, as recited, in part, in claims 5 and similarly in claim 16.

Based at least on the above, Applicants respectfully submit that Hobbs and Dani fail to disclose or suggest all of the features recited in independent claims 5 and 16. Applicants submit that because claims 6-8, 12 and 17 depend from claims 5 and 16, these claims are allowable for at least the same reasons as claims 5 and 16, as well as for the additional features recited therein. Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) is respectfully requested.


For at least the reasons discussed above, Applicants respectfully submit that the cited references fail to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 1-17 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by

telephone, the applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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